

## CLAIMS

What is claimed is:

- 1 A method comprising:
  - 2 receiving a request at a network element to monitor at least one object on the network
  - 3 element;
  - 4 logging information about the at least one object by the network element in response to a
  - 5 change in value of the object;
  - 6 transmitting an indication from the network element of the change in value of the at least
  - 7 one object; and
  - 8 receiving a request at the network element to read the information about the at least one
  - 9 object logged on the network element in response to the transmitted indication.

- 1    2.    The method of claim 1, wherein receiving a request at a network element to
- 2 monitor at least one object on the network element comprises establishing a rule in a
- 3 management information base rules table on the network element to monitor a
- 4 configuration object on the network element.

- 1    3.    The method of claim 2, wherein monitoring a configuration object comprises
- 2 logging a change in value of the configuration object as specified by the request.

1    4.     The method of claim 2, wherein monitoring a configuration object comprises  
2       specifying the configuration object's object identifier in the management information  
3       base tree.

1    5.     The method of claim 4, wherein specifying the configuration object's object  
2       identifier comprises using a less specific object identifier in the management information  
3       base tree, if monitoring the configuration object is not supported in the management  
4       information base tree.

1    6.     The method of claim 1, wherein logging information by the network element in  
2       response to a change in value of the object comprises logging information about the  
3       change in the network element's configuration in a management information base  
4       instance table.

1    7.     The method of claim 1, wherein receiving a request at a network element to  
2       monitor at least one object on the network element comprises receiving a request from  
3       one or more network management stations to monitor at least one object on the network  
4       element.

1    8.     The method of claim 1, wherein transmitting an indication from the network  
2       element of the change in value of the object comprises transmitting a SNMP trap to a  
3       network management station whenever a change in value of the object is detected by the  
4       network element.

1    9.    The method of claim 1, wherein receiving a request at the network element to  
2    read the information logged on the network element in response to the transmitted  
3    indication comprises a network management station reading the logged data from a  
4    management information base instance table on the network element.

1    ~~10.~~    A method comprising:  
2    transmitting a request to a network element to monitor at least one object on the network  
3    element;  
4    receiving an indication from the network element in response to a change in the value of  
5    the object being monitored; and  
6    reading information logged on the network element in response to the indication  
7    received.

1    11.    The method of claim 10, wherein transmitting a request to the network element to  
2    monitor at least one object on the network element comprises writing a rule to a  
3    management information base rules table on the network element to monitor a  
4    configuration object of the network element.

1    12.    The method of claim 11, wherein writing a rule to a management information  
2    base rules table on the network element to monitor a configuration object further  
3    comprises writing a rule to monitor at least one of an addition, deletion, modification or a  
4    change in value of the configuration object by the network element.

1    13.    The method of claim 11, wherein writing a rule to a management information  
2    base rules table on the network element to monitor a configuration object further  
3    comprises specifying the configuration object's object identifier in the management  
4    information base tree.

1    14.    The method of claim 10, wherein receiving an indication from the network  
2    element in response to a change in the value of the object being monitored comprises  
3    receiving a SNMP trap from the network element.

1    15.    The method of claim 10, wherein reading information logged on the network  
2    element in response to the indication received comprises reading the information logged  
3    in a management information base instance table on the network element.

1    ~~16.~~    An article of manufacture comprising:  
2    a machine-readable medium that provides instructions, that when executed  
3    by a machine, cause said machine to perform operations comprising:  
4    receiving a request at a network element to monitor at least one object on the network  
5    element;  
6    logging information about the at least one object by the network element in response to a  
7    change in value of the object;  
8    transmitting an indication from the network element of the change in value of the at least  
9    one object; and

10 receiving a request at the network element to read the information about the at least one  
11 object logged on the network element in response to the transmitted indication.

1 17. The machine-readable medium of claim 16, wherein said instructions for receiving a  
2 request at the network element to monitor at least one object on the network element  
3 includes further instructions to direct said machine to establish a rule in a management  
4 information base rules table on the network element to monitor a configuration object of  
5 the network element.

1 18. The machine-readable medium of claim 17, wherein said instructions for  
2 monitoring a configuration object includes further instructions to direct said machine to  
3 log a change in value of the configuration object as specified by the request.

1 19. The machine-readable medium of claim 17, wherein said instructions for  
2 monitoring a configuration object on the network element includes further instructions to  
3 direct said machine to specify the configuration object's object identifier in the  
4 management information base tree.

1 20. The machine-readable medium of claim 19, wherein said instructions for  
2 specifying the configuration object's object identifier includes further instructions to  
3 direct said machine to specify a previous object identifier in the management information  
4 base tree if the specified configuration object's object identifier is not defined in the  
5 management information base.

1    21.    The machine-readable medium of claim 16, wherein said instructions for  
2    transmitting an indication from the network element of the change in value of the object  
3    includes further instructions to direct said machine to transmit a SNMP trap to a network  
4    management station whenever a change in value of the object is detected by the network  
5    element.

1    22.    The machine-readable medium of claim 16, wherein said instructions for  
2    receiving a request at the network element to read the information logged on the network  
3    element in response to the transmitted indication includes further instructions for a  
4    network management station reading the logged data from a management information  
5    base instance table on the network element.

1    ~~23.~~    An article of manufacture comprising:  
2    a machine-readable medium that provides instructions, that when executed  
3    by a machine, cause said machine to perform operations comprising:  
4    transmitting a request to a network element to monitor at least one object on the network  
5    element;  
6    receiving an indication from the network element in response to a change in the value of  
7    the object being monitored; and  
8    reading information logged on the network element in response to the indication  
9    received.

1    24.    The machine-readable medium of claim 23, wherein said instructions for  
2    transmitting a request to the network element to monitor at least one object on the  
3    network element includes further instructions to write a rule to a management  
4    information base rules table on the network element to monitor a configuration object of  
5    the network element.

1    25.    The machine-readable medium of claim 24, wherein said instructions for writing a  
2    rule to a management information base rules table on the network element to monitor a  
3    configuration object includes further instructions to write a rule to monitor at least one of  
4    an addition, deletion, modification or a change in value of the configuration object by the  
5    network element.

1    26.    The machine-readable medium of claim 24, wherein writing a rule to a  
2    management information base rules table on the network element to monitor a  
3    configuration object includes further instructions to specify the configuration object's  
4    object identifier in the management information base tree.

1    27.    The machine-readable medium of claim 23, wherein receiving an indication from  
2    the network element in response to a change in the value of the object being monitored  
3    includes further instructions to read the information logged in a management information  
4    base instance table on the network element.

1    28.    An apparatus comprising:

2 a transceiver to receive a request at the network element to monitor at least one  
3 configuration object on the network element, and to receive a request to read information  
4 logged in a management information base instance table in a memory;  
5 a microprocessor communicatively coupled to the transceiver and the memory, to execute  
6 a program to monitor the configuration object and to log said information in a  
7 management information base instance table in the memory, in response to a change in  
8 value of a configuration of the monitored object; and  
9 the transceiver to transmit an indication of a change in value of the object being  
10 monitored.

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1 29. The apparatus of claim 28, wherein the indication transmitted by the transmitter is  
2 a SNMP trap.

1 30. The apparatus of claim 28, wherein the memory maintains a management  
2 information base rules table containing the object identifiers of the configuration objects  
3 to be monitored.

1 ~~31~~ An apparatus comprising:  
2 a transceiver to transmit a request to a network element to monitor at least one  
3 configuration object on the network element, and to read information logged in a  
4 management information base instance table on the network element;

5       a microprocessor communicatively coupled to the transceiver, and a memory to execute a  
6       program to analyze information received from the network element and to manage the  
7       configuration of the network element based on the information analyzed; and  
8       the transceiver to receive an indication from the network element in response to a change  
9       in the value of the configuration object.

1       32.      The apparatus of claim 31 wherein the indication received by the receiver is a  
2       SNMP trap.

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